CLAIMS:

1.   A method for encoding scalable video comprising the steps of:

forming (1190) a motion compensated full resolution prediction;

5   combining (1105) the motion compensated full resolution prediction from an image block to form a prediction residual;

downsampling (1112) the prediction residual to form a low resolution downsampled prediction residual; and

coding (1115) the low resolution downsampled prediction residual.

10

2.   A spatial scalable video encoder for encoding an image block, comprising:

a motion compensator (1190) for forming a motion compensated full resolution prediction;

15   a subtractor (1105), in signal communication with said motion compensator, for subtracting the motion compensated full resolution prediction from the image block to form a prediction residual;

a downsampler (1112), in signal communication with said subtractor, for downsampling the prediction residual to form a low resolution downsampled

20   prediction residual; and

a transformer/quantizer (1115), in signal communication with said downsampler, for coding the low resolution downsampled prediction residual.

3.   The spatial scalable video encoder of claim 2, further comprising:

25   an inverse quantizer/inverse transformer (1125), in signal communication with said transformer/quantizer, for inverse quantizing and inverse transforming the coded low resolution downsampled prediction residual to form a coded prediction residual;

an upsampler (1155), in signal communication with said inverse quantizer/inverse transformer, for upsampling the coded prediction residual to form a

30   coded upsampled prediction residual; and

an adder (1199), in signal communication with said upsampler, for adding the upsampled prediction residual to a motion compensated full resolution prediction to form a sum signal.

4.   The spatial scalable video encoder of claim 3, further comprising an entropy coder (1120), in signal communication with said transformer/quantizer, for encoding the coded low resolution downsampled prediction residual into a base layer bitstream.

5.   The spatial scalable video encoder of claim 3, further comprising:

a subtractor (1160), in signal communication with said adder (1199), for subtracting the sum signal from the input image block to form a difference signal; and

another quantizer/transformer (1170), in signal communication with said subtractor, for forming a full resolution enhancement layer error signal from the difference signal.

6.   The spatial scalable video encoder of claim 5, further comprising:

an entropy coder (1120), in signal communication with said quantizer/ transformer, for encoding the coded downsampled prediction residual into a base layer bitstream; and

an entropy coder (1175), in signal communication with said quantizer/transformer, for encoding the full resolution enhancement layer error signal into a enhancement layer bitstream.

7.   The spatial scalable video encoder of claim 6, wherein the enhancement layer bitstream is encoded only for intra-coded slices in the base layer bitstream.

8.   An apparatus for encoding scalable video, comprising:

means for forming (1190) a motion compensated full resolution prediction;

means for combining (1105) the motion compensated full resolution prediction from an image block to form a prediction residual;

means for downsampling (1112) the prediction residual to form a low resolution downsampled prediction residual; and

means for coding (1115) the low resolution downsampled prediction residual.

9.   A method for encoding an image block, comprising the steps of:

forming (1325) a motion compensated full resolution prediction;

subtracting (1330) the motion compensated full resolution prediction from the image block to form a prediction residual;

downsampling (1335) the prediction residual to form a low resolution downsampled prediction residual; and

coding (1345) the low resolution downsampled prediction residual to form a coded low resolution downsampled prediction residual.

10.   The method of claim 9, further comprising the steps of:

inverse quantizing and inverse transforming (1350) the coded low resolution downsampled prediction residual to form a coded prediction residual;

upsampling (1355) the coded prediction residual to form a coded upsampled prediction residual; and

adding (1360) the upsampled prediction residual to a motion compensated full resolution prediction to form a sum signal.

11.   The method of claim 10, further comprising the step of encoding (1345) the coded low resolution downsampled prediction residual into a base layer bitstream.

12.   The spatial scalable video encoder of claim 10, further comprising the steps of:

subtracting (1365) the sum signal from the input image block to form a difference signal; and

quantizing and transforming (1370) the difference signal to form a full resolution enhancement layer error signal.

13.   The method of claim 12, further comprising the steps of:

encoding (1345) the coded downsampled prediction residual into a base layer bitstream; and

encoding (1375) the full resolution enhancement layer error signal into a enhancement layer bitstream.

14.   The method of claim 13, wherein the enhancement layer bitstream is encoded only for intra-coded slices in the base layer bitstream.

15.   A scalable compressed video signal data structure formed by a method comprising the steps of:

forming (1325) a motion compensated full resolution prediction;

subtracting (1330) the motion compensated full resolution prediction from the image block to form a prediction residual;

downsampling (1335) the prediction residual to form a low resolution downsampled prediction residual; and

coding (1345) the low resolution downsampled prediction residual to form a coded low resolution downsampled prediction residual.